

Fig. 1

*superceeded by
drawings
received
06-02-00*

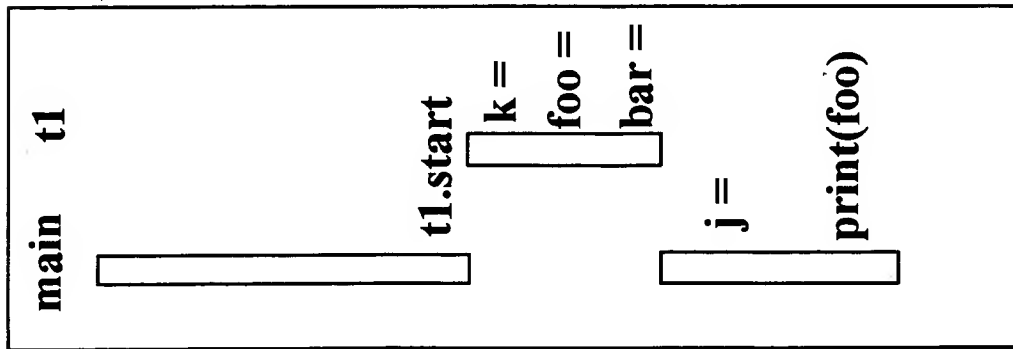


Fig. 2 (a)

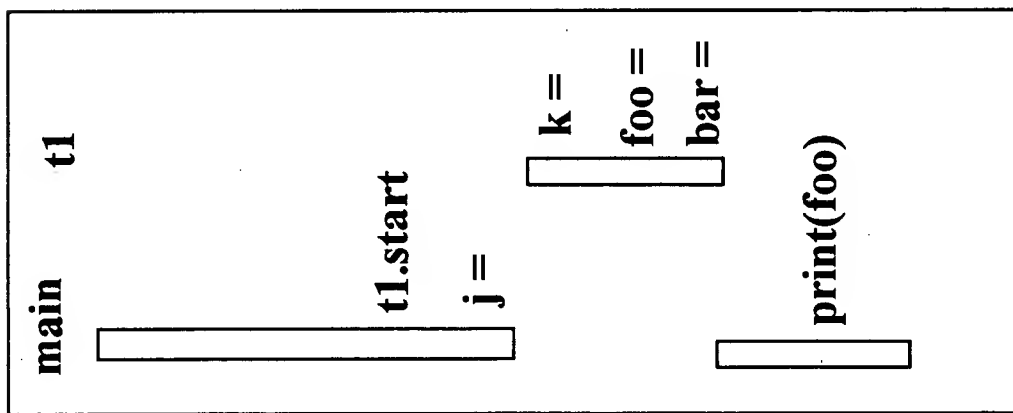


Fig. 2 (b)

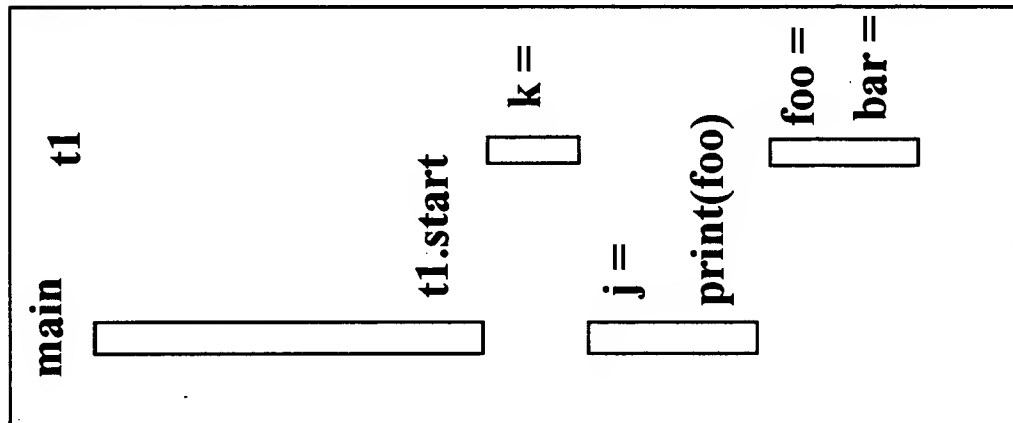


Fig. 2 (c)

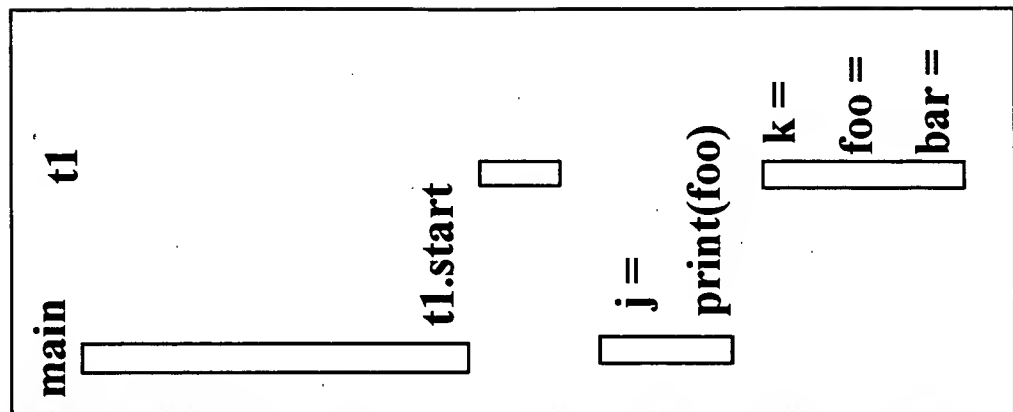


Fig. 2 (d)

.....time

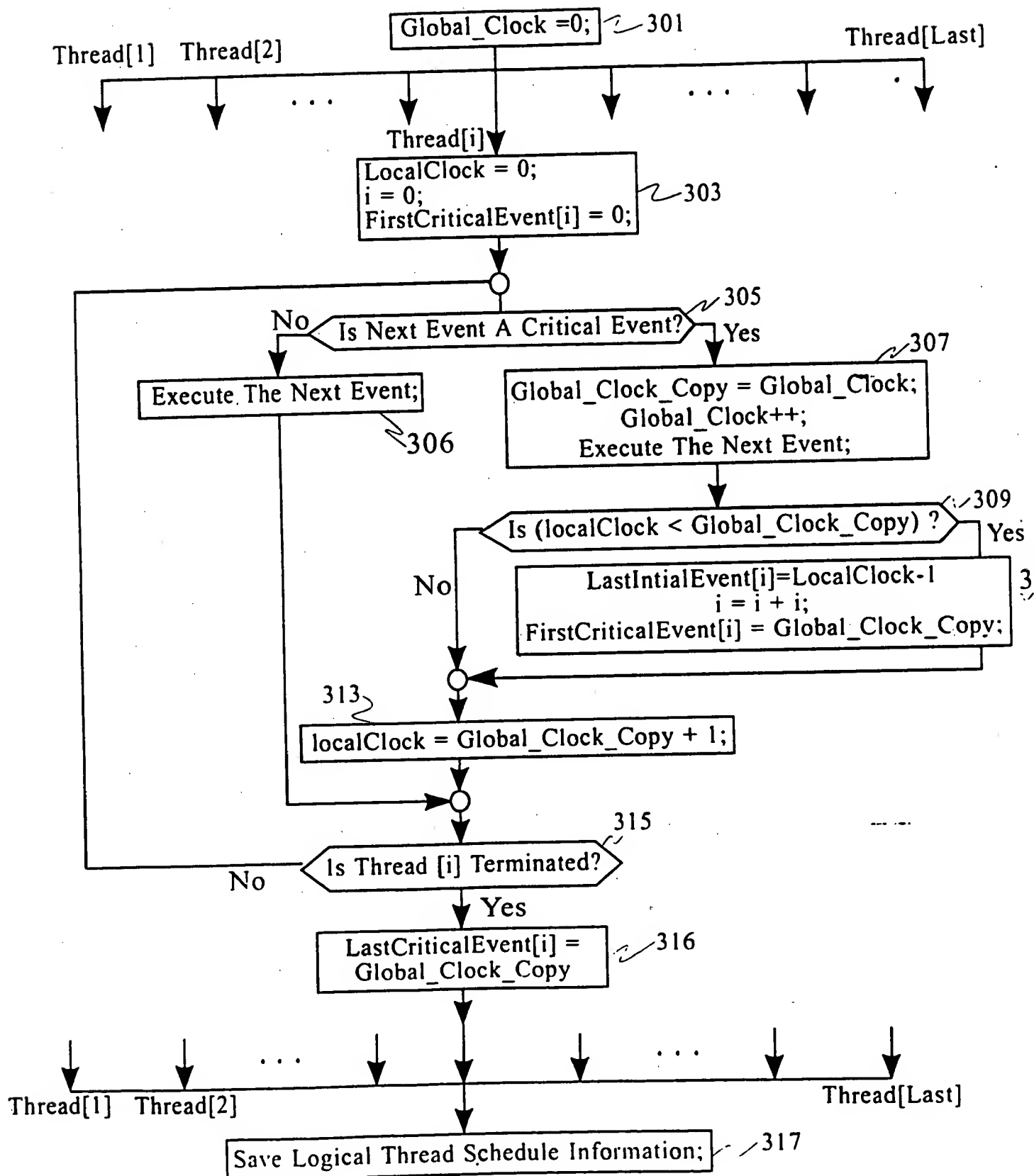


Fig. 3A

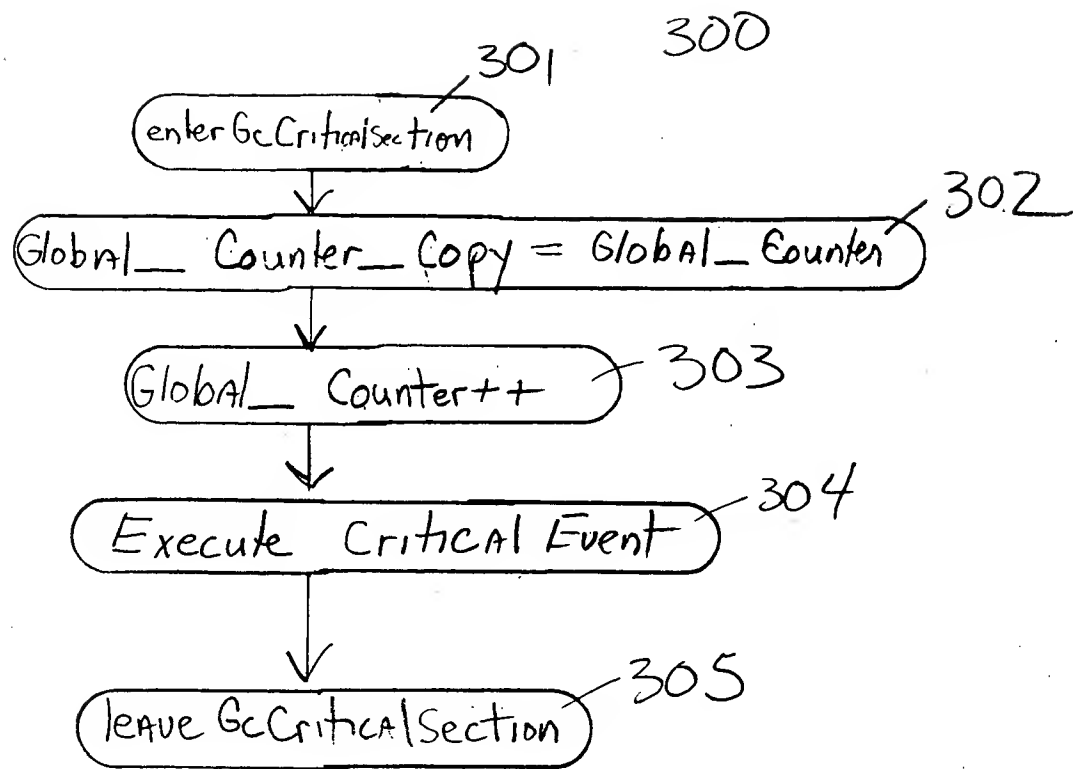
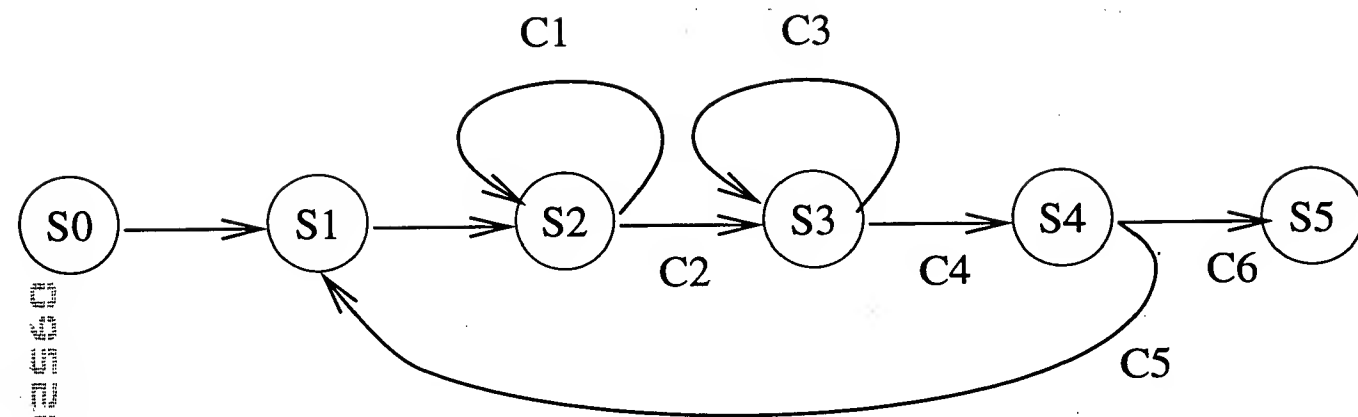


Fig. 3B



START, $i = 0$
 update FirstCriticalEvent(i) and
 LastCriticalEvent(i)
 yield the thread schedule
 execute event.
 CriticalEvent increment global_counter
 $i = i + 1$
 END

C1: $\text{global_counter} < \text{FirstCriticalEvent}(i)$
 C2: not C1
 C3: $\text{global_counter} \leq \text{LastCriticalEvent}(i)$
 C4: not C3
 C5: $i \leq \text{last interval}$
 C6: not C5

FIG. 5

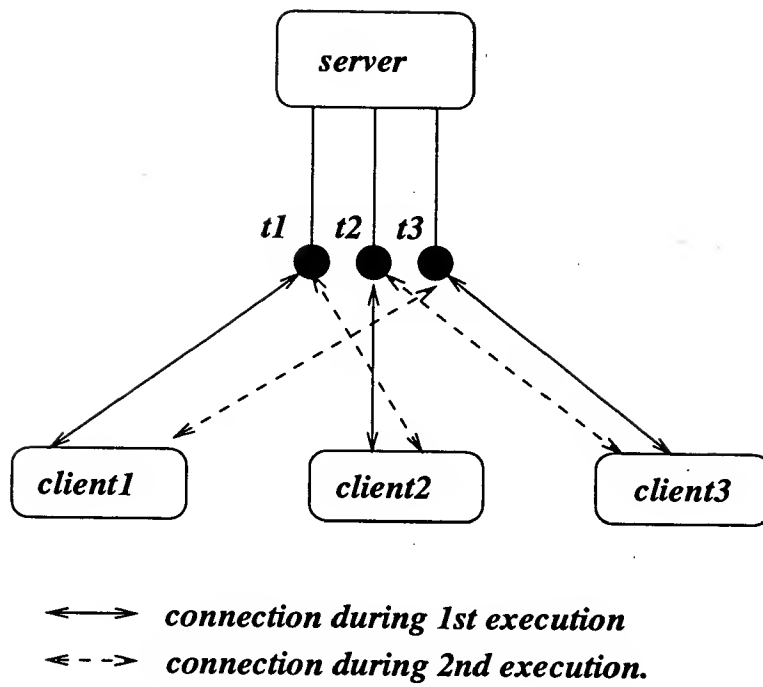
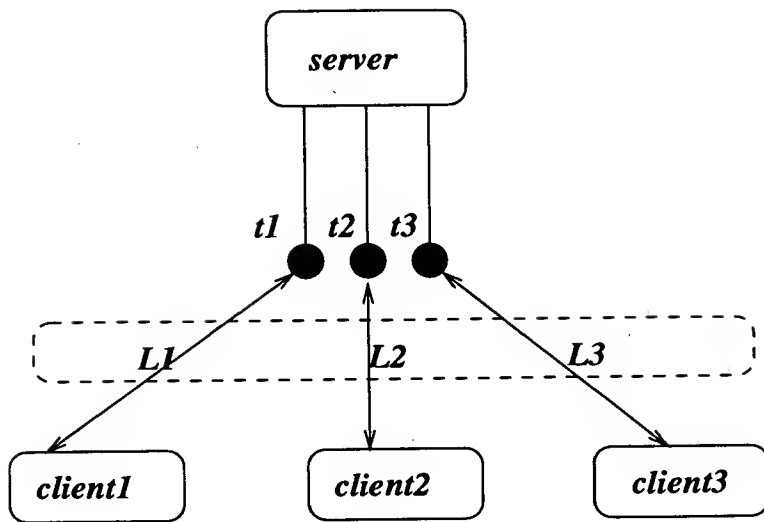


FIG. 6



L1: $\langle gS1, Client1Id \rangle$, $Client1Id = \langle Client1VMID, gCounterClient1 \rangle$

L2: $\langle gS2, Client2Id \rangle$, $Client2Id = \langle Client2VMID, gCounterClient2 \rangle$

L3: $\langle gS3, Client3Id \rangle$, $Client3Id = \langle Client3VMID, gCounterClient3 \rangle$

FIG. 7

Figure 8(a): read in Record Mode

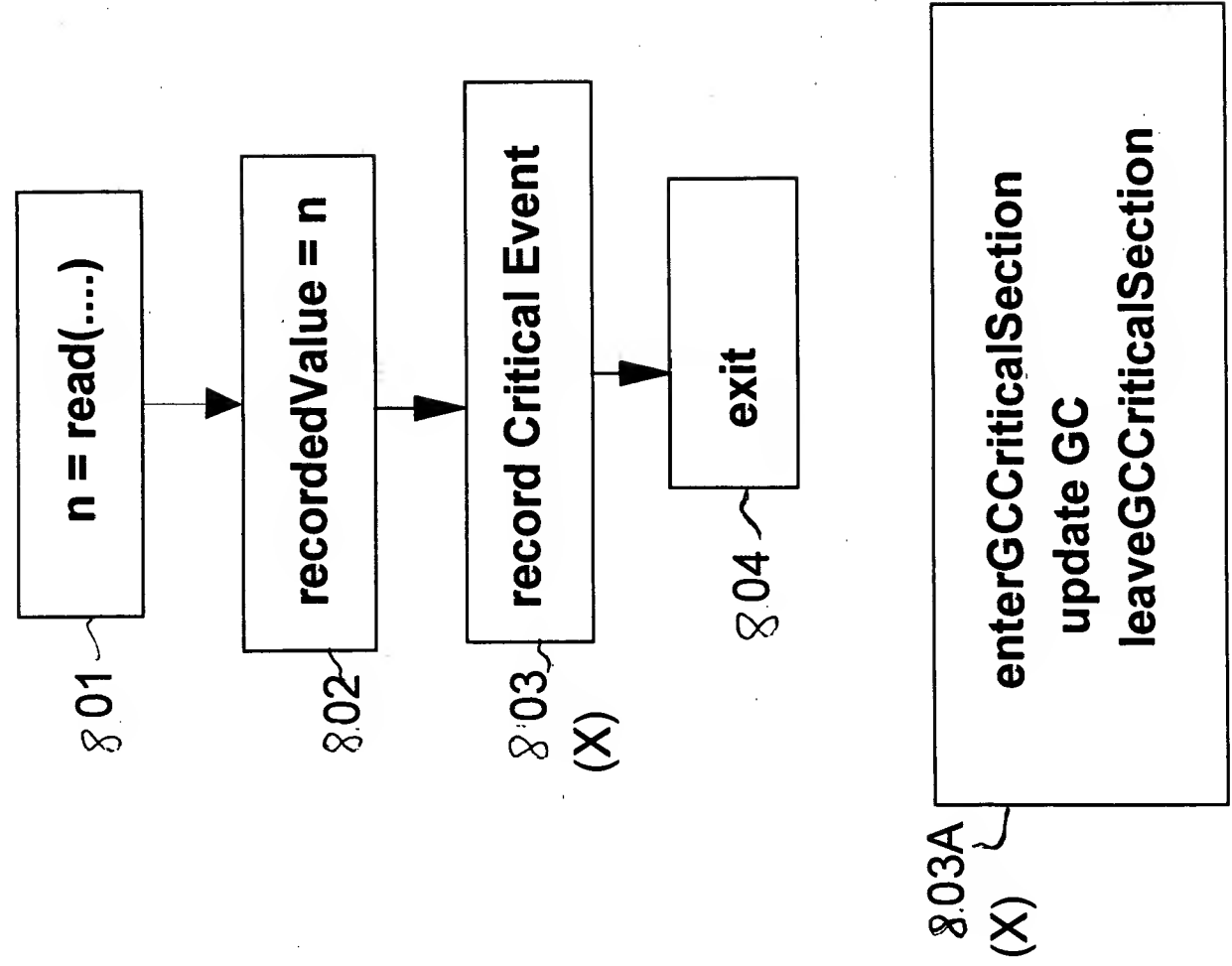
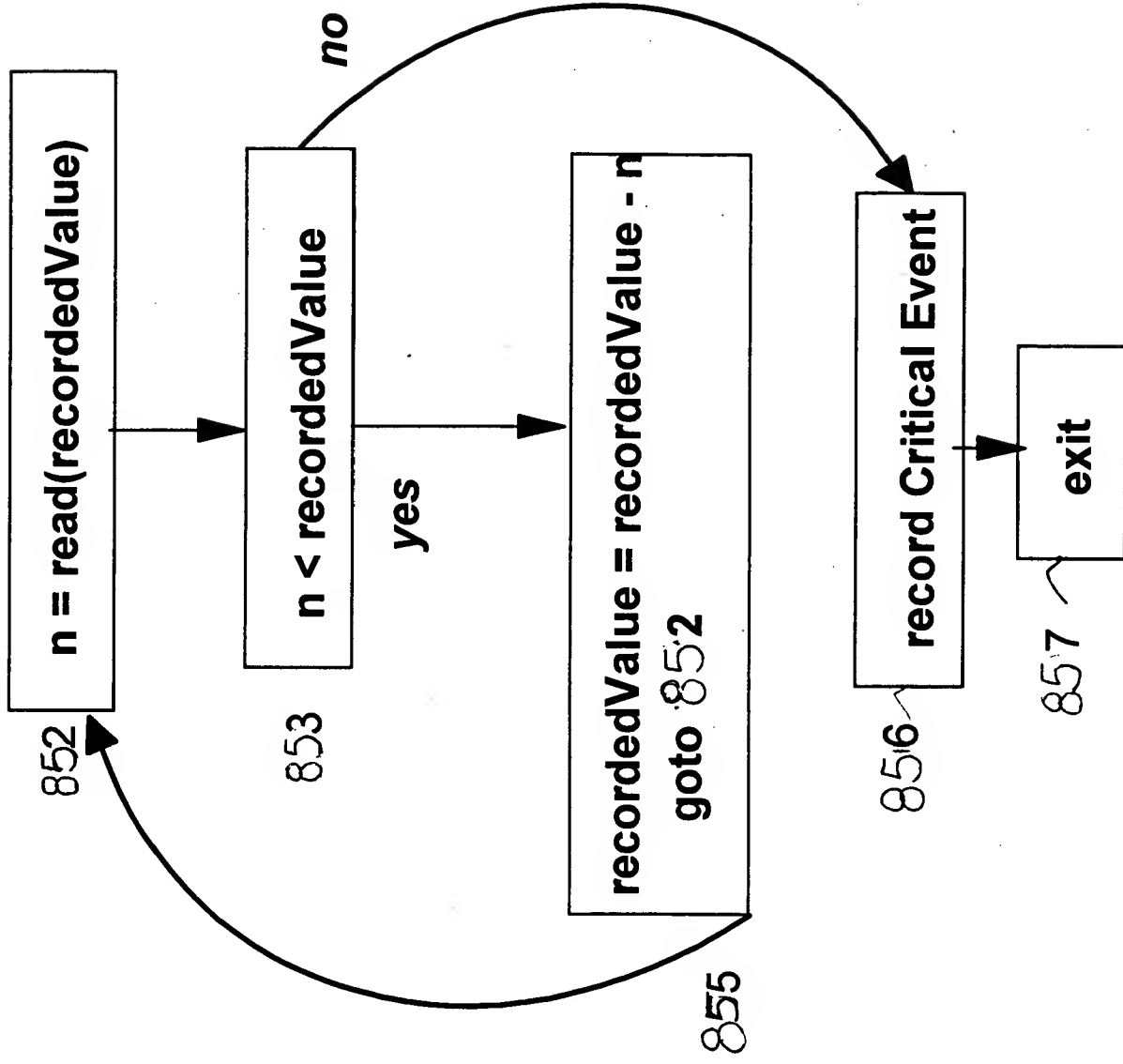


Figure 8(b): read in Replay Mode



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wait until GC = recorded GC
update GC

Figure 9 (a): write in Record Mode

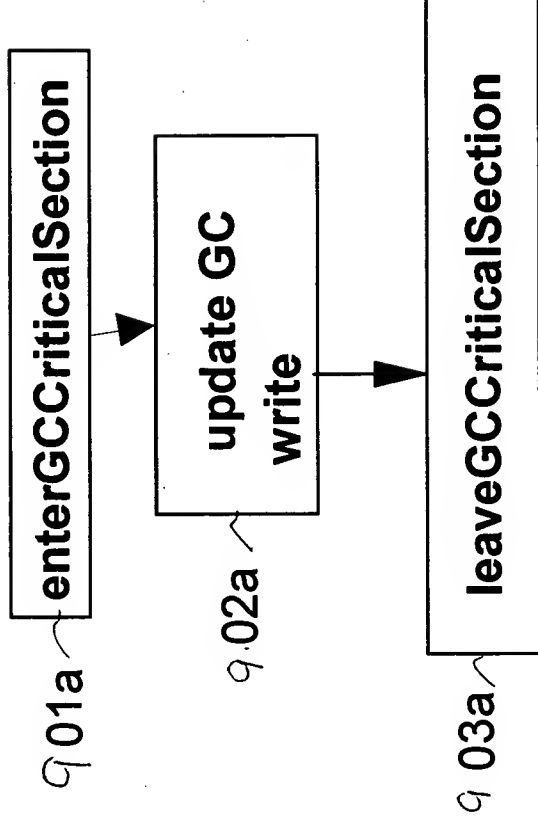


Figure 9 (b): write in Replay Mode

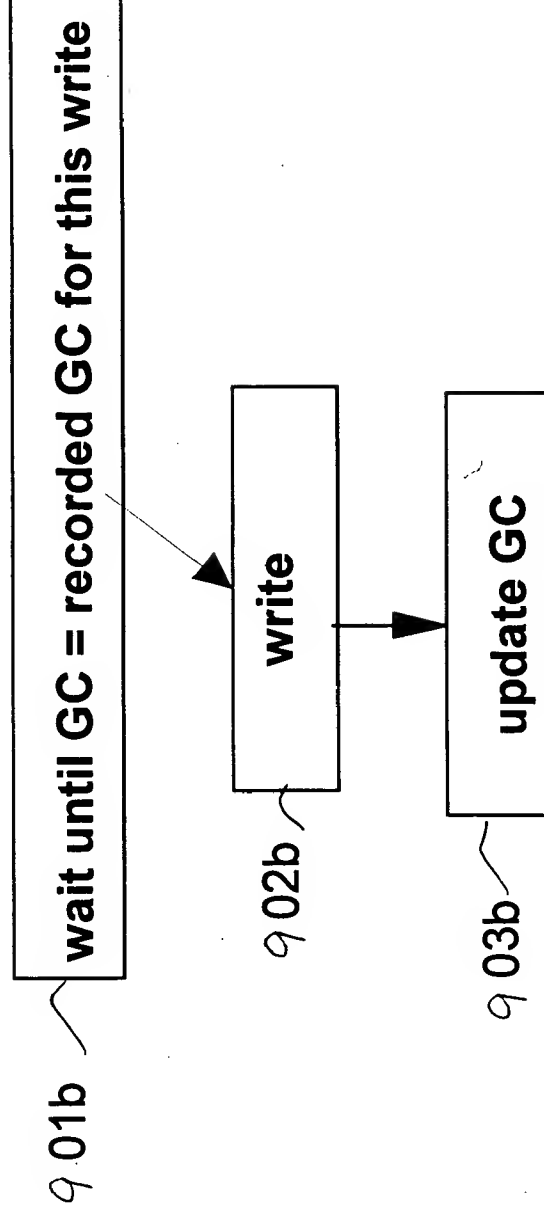
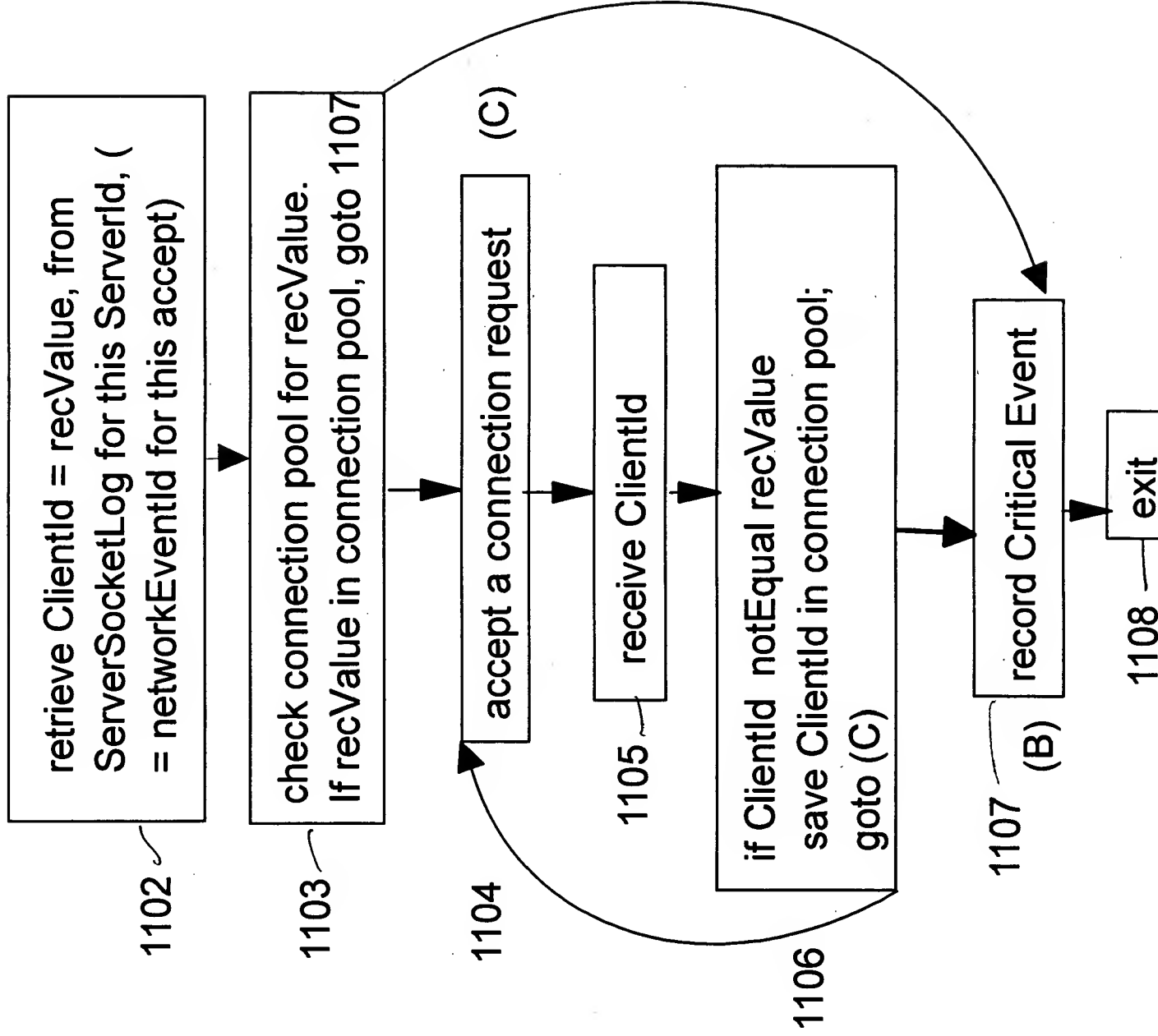


Figure 11: accept in Replay Mode

Serv r



[illegible]

Figure 12(b): efficient replay of write

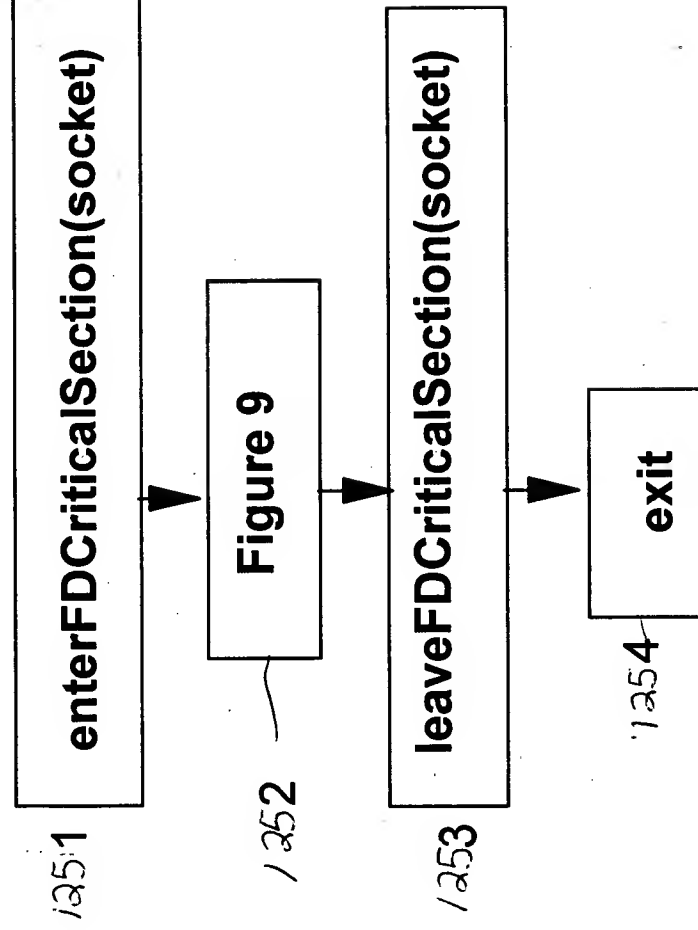


FIG 13.

